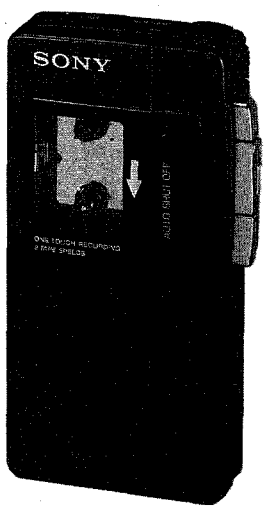
M-330

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model



Model Name Using Similar Mechanism	M-740
Tape Transport Mechanism Type	MZ-330-14

SPECIFICATIONS

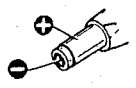
Tape	(MICROCASSETTE)™ (normal position type)
Recording system	*2-track 1-channel monaural*
Speaker	Approx. 4 cm (1 5/8 inches) dia.
Tape speed	2.4 cm/s (15/16 ips), 1.2 cm/s (15/32 ips)
Frequency response	250 – 4,000 Hz (at 2.4 cm position)
Output	Earphone jack (minijack) for 8-300 ohm earphone
Power output	150 mW (at 10 % harmonic distortion)
Battery life (recording)	Sony SUM-3 (NS): Approx. 6 hours Sony AM3 (N): Approx. 18 hours
Power requirements	3 V DC, two size AA (R6) batteries DC IN 3V jack accepts: • Sony AC-D2M AC power adaptor (optional) available in US, Canadian models for use on 120 V AC, 60 Hz available in AEP model for use on 220 V AC, 50 Hz available in UK model for use on 240 V AC, 50 Hz available in E model for use on 120 V AC, 60 Hz or 220 V AC, 50 Hz • Sony DCC-70 car battery cord (optional) for use with 12 V car battery
Dimensions	Approx. 67.5 × 124 × 27 mm (w/h/d) (2 3/4 × 5 × 1 1/8 inches) incl. projecting parts and controls
Weight	Approx. 180 g (6.4 oz.) incl. batteries
Accessory supplied	*Microcassette tape MC-30 (1) (US model only)* Handstrap (1) (AEP, E model)

Design and specifications subject to change without notice.

FEATURES

- Compact size and easy operation
- You can start recording directly from the playback mode. This function is convenient to correct a previously recorded portion.
- Automatic shut-off mechanism

Note: Use only the recommended AC power adaptor or car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.



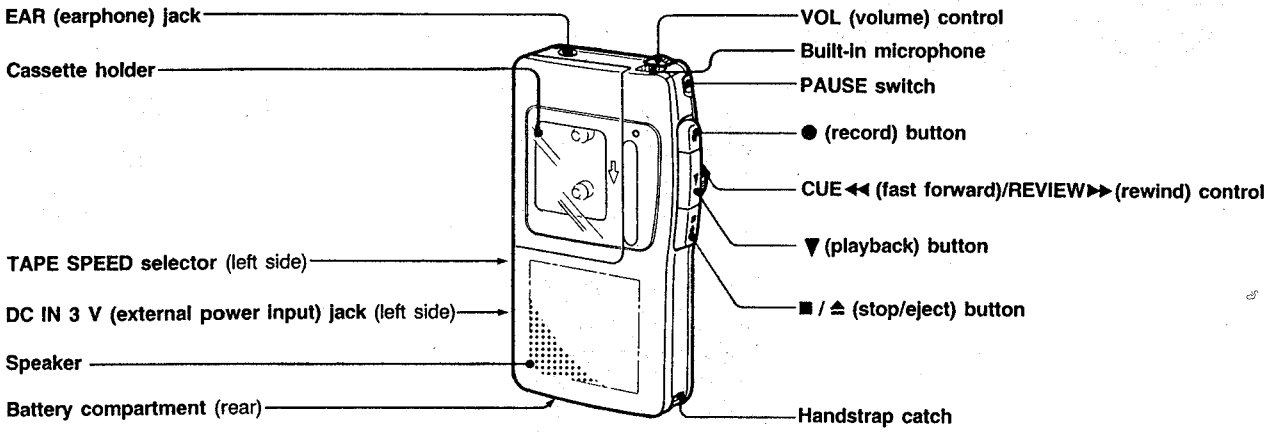
Polarity of the Sony plug

MICROFILM

MICROCASSETTE™-CORDER

SONY®

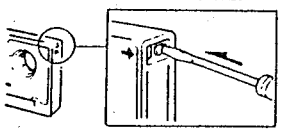
LOCATION OF CONTROLS



NOTES ON MICROCASSETTE

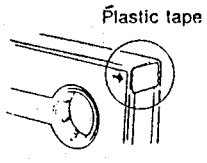
To protect cassettes from accidental erasure

Break out and remove the tab.

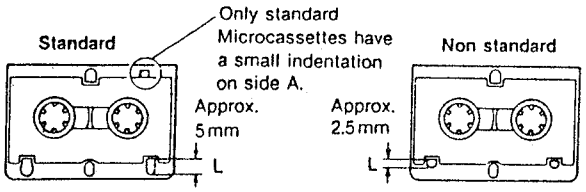


To reuse a cassette

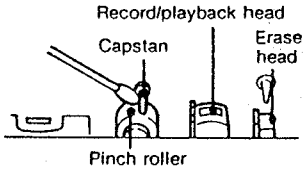
Cover the slot with plastic tape.



This unit uses only standard Microcassettes. Non standard cassettes cannot be used because their "L" dimension (see illustration) is different.



MAINTENANCE



Cleaning the head

Clean the tape head after every 10 hours of use to enjoy optimum sound. Moisten a cotton swab or a soft cloth with alcohol and wipe the parts shown in the illustration.

Cleaning the casing

Clean the casing with a soft cloth slightly moistened with water or a mild detergent solution. Do not use alcohol, benzine or thinner as they may mar the finish.

SERVICING NOTE

Repairing printed resistor

Cut both sides of the resistor and solder the carbon resistor having same value in place of printed one of the conductor side.

1/4W carbon resistor is supplied for the replacing part of the printed resistor.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SECTION 1
ADJUSTMENTS

1-1. MECHANICAL ADJUSTMENT AND MEASUREMENT

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

   record/playback head — pinch roller
   erase head — rubber belts
   capstan

2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Power supply voltage: 3 V dc
TAPE SPEED switch: 2.4 cm

Torque Measurement

Torque	Meter Reading	Torque Meter
Forward	5 - 13g·cm (0.07 - 0.18oz·inch)	CQ-103M
Fast Forward	5 - 13g·cm (0.07 - 0.18oz·inch)	CQ-201M
Rewind	more than 15g·cm (more than 0.21oz·inch)	CQ-201M

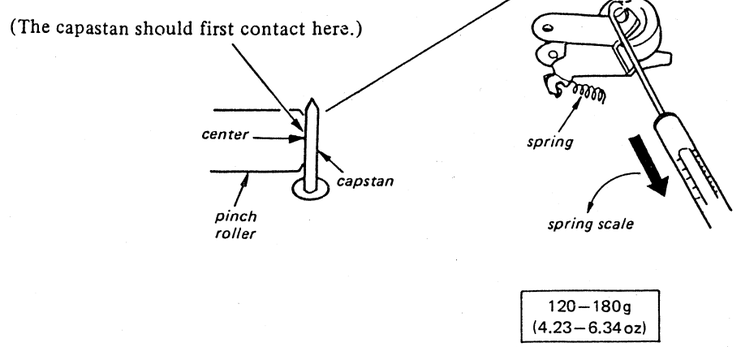
Tape Tension Measurement

Torque Meter	Meter Reading
CQ-403M	more than 40g·cm (more than 0.56oz·inch)

Pinch Roller Pressure Adjustment

– Playback Mode –

Slowly return the pinch roller and read the spring scale just when the pinch roller starts rotating.



120–180g
(4.23–6.34oz)

1-2. ELECTRICAL ADJUSTMENTS

Standard Input Level

Type	Sugnal	Used for
WS-24	3kHz, −10dB	Tape Speed Adjustment
S-2-A030	3kHz, −20dB	Head Azimuth Adjustment

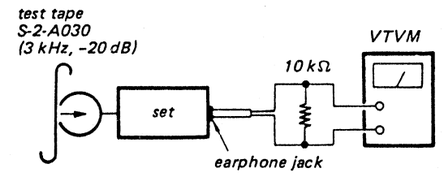
Record/playback Head Azimuth Adjustment

Setting:

VOLUME control: mechanical mid
TAPE SPEED switch: 2.4 cm/s

Procedure:

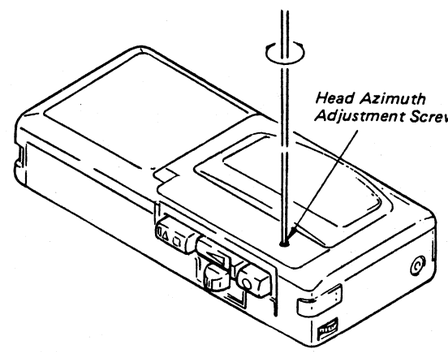
1. Mode: playback



2. Turn the adjustment screw to obtain the maximum reading on VTVM.

   Note: Several peaks may appear, but take the maximum.

Adjustment Location:



Tape Speed Adjustment

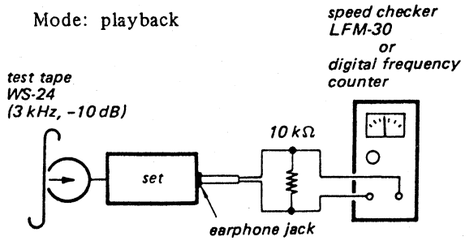
Setting:

VOLUME control: mechanical mid

Procedure:

- Perform 2.4 cm/s speed adjustment before 1.2 cm/s speed adjustment.

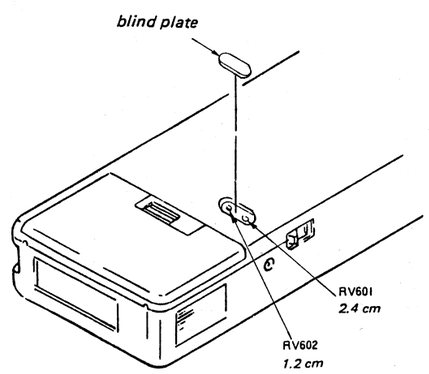
Mode: playback



Tape speed	Speed checker	Digital frequency counter
2.4 cm/s	±4%	2,880 – 3,120 Hz
1.2 cm/s	±5%	1,425 – 1,575 Hz

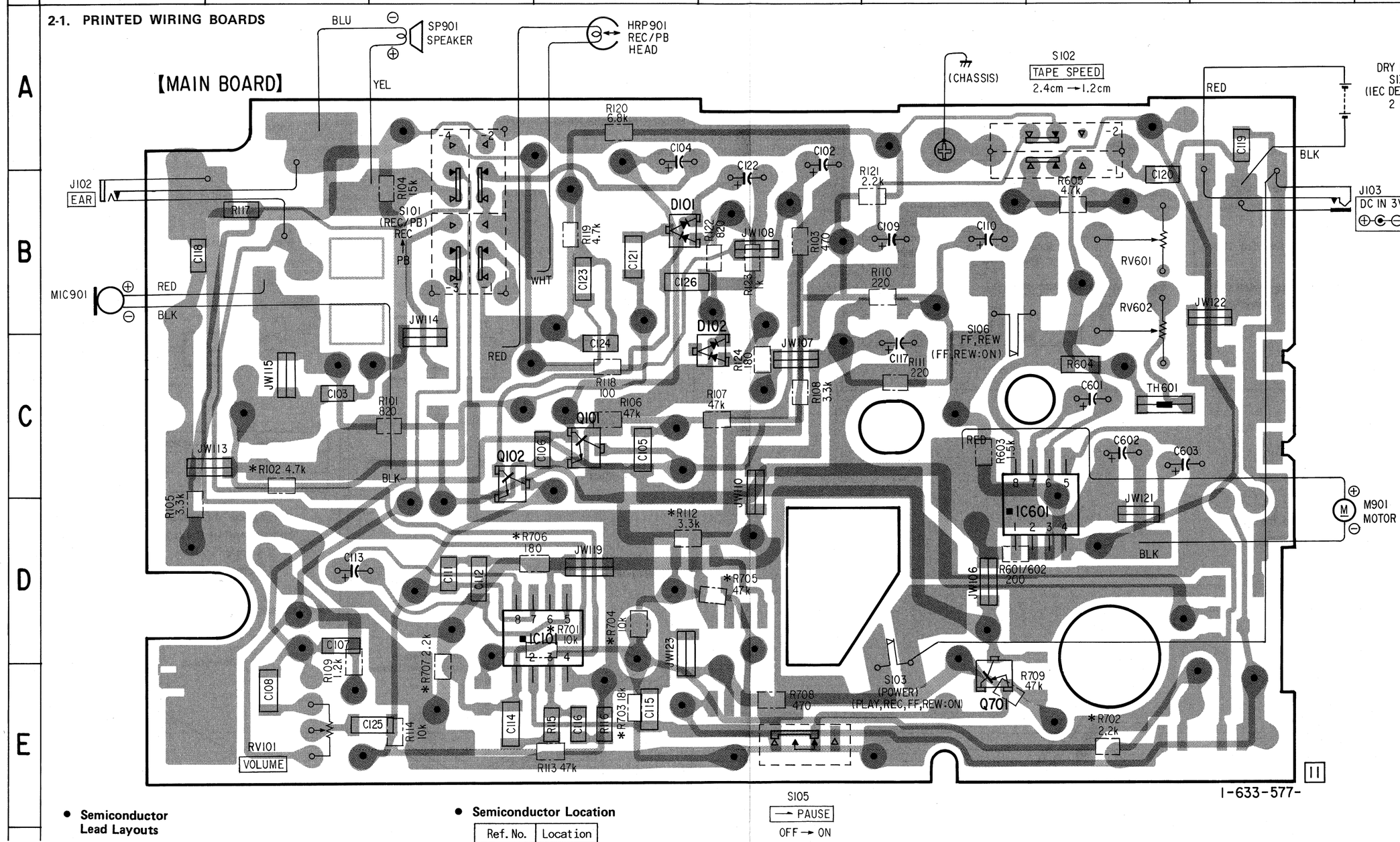
Frequency difference between the beginning and the end of the tape should be within 0.5%.
2.4 cm/s (15 Hz)
1.2 cm/s (7.5 Hz)

Adjustment Location:



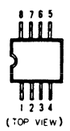
speed adjustable resistors

2-1. PRINTED WIRING BOARDS



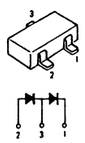
- **Semiconductor Lead Layouts**

LA5521M
NJM2073M



2SB624-BV5
2SC2712G

DA204U



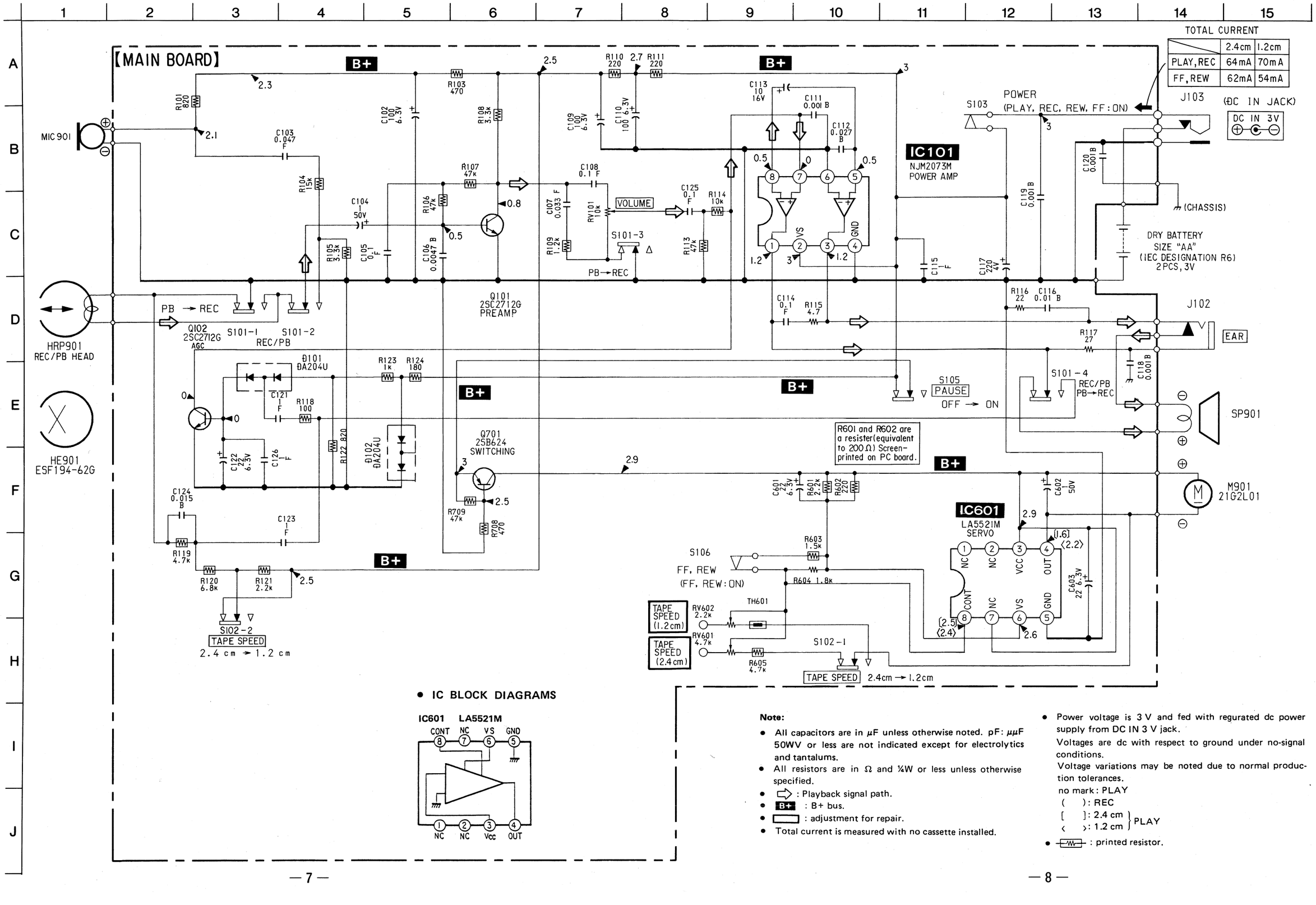
- **Semiconductor Location**

Ref. No.	Location
D101	B-4
D102	C-5
IC101	D-4
IC601	D-6
Q101	C-4
Q102	C-3
Q701	E-6

Note:

- ■ : part mounted on the conductor side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
- ⊏⊐ : printed resistor.
- ▩ : Pattern of the rear side.
- Printed resistors with * mark (R102, R112, R701 – R707) are not used in M-330.

2-2. SCHEMATIC DIAGRAM



• IC BLOCK DIAGRAMS

IC601 LA5521M

Note:

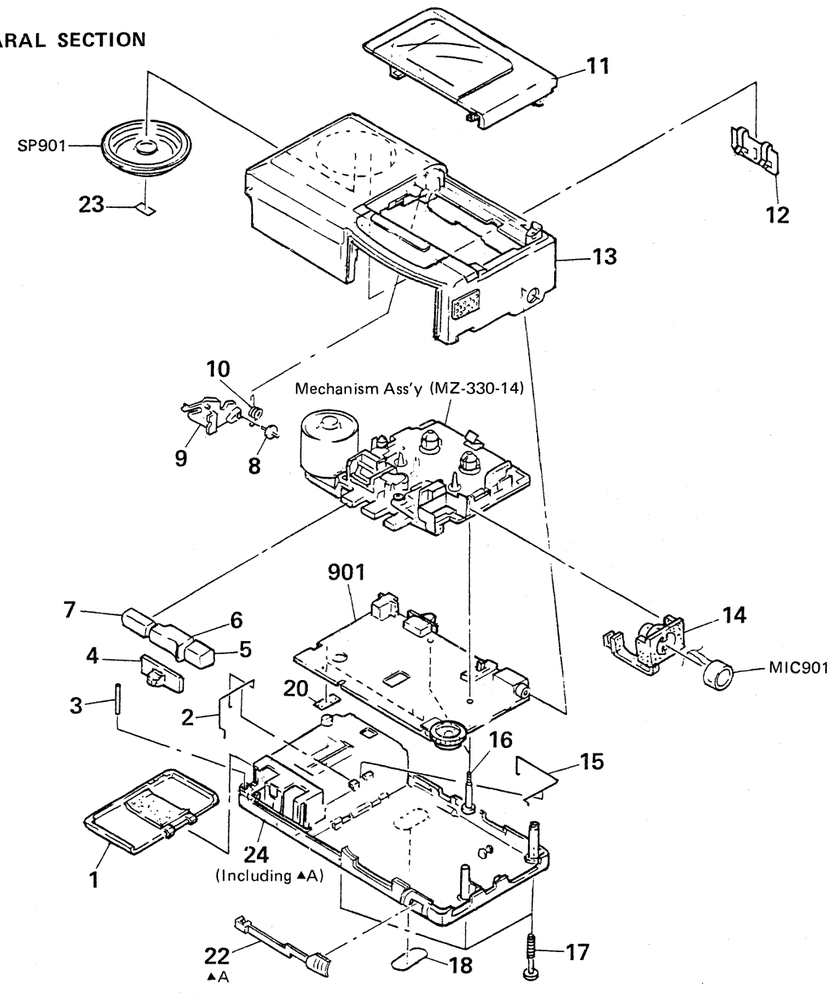
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- ⇨ : Playback signal path.
- B+ : B+ bus.
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is 3 V and fed with regurated dc power supply from DC IN 3 V jack.
  Voltages are dc with respect to ground under no-signal conditions.
  Voltage variations may be noted due to normal production tolerances.
  no mark : PLAY
  ( ) : REC
  [ ] : 2.4 cm } PLAY
  < > : 1.2 cm }
- ⊣⊢ : printed resistor.

SECTION 3
EXPLODED VIEWS

NOTE:

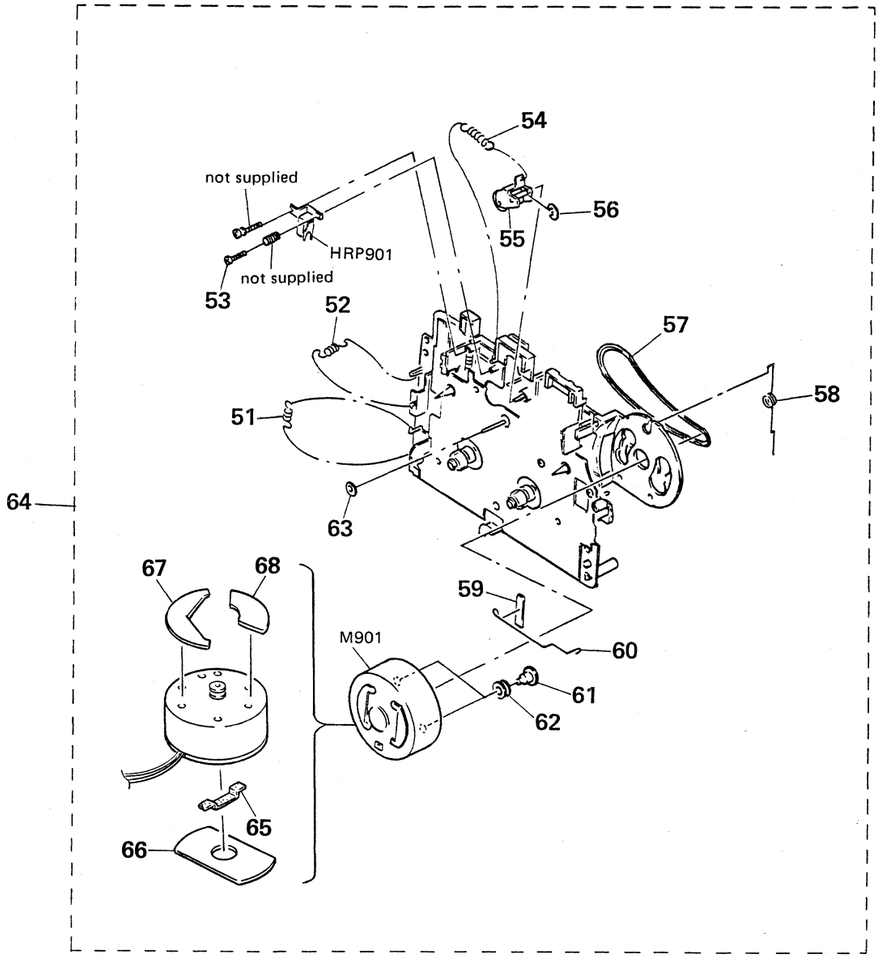
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts' Color

3-1. GENARAL SECTION



No.	Part No.	Description	Remarks
1	X-3339-382-1	LID ASSY, BATTERY CASE	
2	3-357-510-01	TERMINAL (+), BATTERY	
3	3-576-082-00	PIN, PARALLEL	
4	3-343-960-01	BUTTON (F/R)	
5	3-343-956-01	BUTTON (REC)	
6	3-343-958-01	BUTTON (PLAY)	
7	3-343-957-01	BUTTON (STOP)	
8	3-358-333-01	SHAFT (EJECT), LEVER	
9	3-343-955-01	LEVER (EJECT)	
10	3-343-949-01	SPRING, TORSION	
11	X-3342-136-1	LID ASSY, CASSETTE	
12	3-576-074-00	SPRING	
13	X-3342-135-1	CABINET (FRONT) ASSY	
14	3-343-953-01	HOLDER, MICROPHONE	
15	3-357-511-01	TERMINAL (-), BATTERY	
16	3-342-156-31	SCREW PWH 1.4X9.8	
17	3-357-509-01	SCREW (+1.7), TAPPING	
18	3-342-155-11	PLATE, BLIND	
20	3-831-441-11	CUSHION (B)	
22	3-343-954-01	KNOB (PAUSE)	
23	*3-358-332-01	CUSHION	
24	X-3342-147-1	CABINET (REAR) ASSY	22
901	A-3015-851-A	PC BOARD ASSY, MAIN	
MIC901	1-542-136-11	MICROPHONE, BUILT-IN	
SP901	1-503-761-11	SPEAKER	

3-2. MECHANISM SECTION (MZ-330-14)



No.	Part No.	Description	Remarks
51	3-342-186-01	SPRING, TENSION	
52	3-342-102-01	SPRING, TENSION	
53	3-318-203-31	SCREW (B1.7X8), TAPPING	
54	3-342-173-01	SPRING, TENSION	
55	X-3342-102-1	PINCH LEVER ASSY	
56	3-590-768-00	RING (A), E	
57	3-343-966-01	BELT	
58	3-358-324-01	SPRING, SW ARM	
59	3-485-330-11	FELT	
60	3-357-512-01	SPRING, M GROUND	
61	3-309-836-01	SHAFT, FITTING, MOTOR	
62	3-570-770-00	CUSHION (A), MOTOR	
63	3-315-384-41	WASHER, STOPPER (t=0.35)	
64	A-3013-430-A	MECHANISM ASSY (MZ-330-14)	51-68
65	3-485-330-11	FELT	
66	3-342-050-11	RUBBER (A), VIBRATION PROOF	
67	3-342-075-01	SPACER, MOTOR	
68	3-352-476-01	SHEET (MOTOR)	
HRP901	1-543-432-11	HEAD, MAGNETIC (REC/PB)	
M901	1-541-738-11	MOTOR	

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

Ref.No.	Part No.	Description			
901	A-3015-851-A	PC BOARD ASSY, MAIN			
C102	1-124-225-00	ELECT	100MF	20%	6.3V
C103	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C104	1-126-160-11	ELECT	1MF	20%	50V
C105	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C106	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C107	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C108	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C109	1-124-225-00	ELECT	100MF	20%	6.3V
C110	1-124-225-00	ELECT	100MF	20%	6.3V
C111	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C112	1-163-064-00	CERAMIC CHIP	0.027MF	10%	50V
C113	1-126-157-11	ELECT	10MF	20%	16V
C114	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C115	1-162-638-11	CERAMIC CHIP	1MF		16V
C116	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C117	1-124-434-00	ELECT	220MF	20%	4V
C118	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C119	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C120	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C121	1-162-638-11	CERAMIC CHIP	1MF		16V
C122	1-126-153-11	ELECT	22MF	20%	6.3V
C123	1-162-638-11	CERAMIC CHIP	1MF		16V
C124	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C125	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C126	1-162-638-11	CERAMIC CHIP	1MF		16V
C601	1-126-153-11	ELECT	22MF	20%	6.3V
C602	1-126-160-11	ELECT	1MF	20%	50V
C603	1-126-153-11	ELECT	22MF	20%	6.3V
D101	8-719-941-23	DIODE DA204U			
D102	8-719-941-23	DIODE DA204U			
HRP901	1-543-432-11	HEAD, MAGNETIC (REC/PB)			
IC101	8-759-701-02	IC NJM2073M			
IC601	8-759-804-43	IC LA5521M			
J102	1-569-215-21	JACK (EAR)			
J103	1-568-228-11	JACK, EXTERNAL POWER (DC IN 3V)			
JW105	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW106	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW107	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW108	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW110	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW113	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW114	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW115	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW119	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW121	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW122	1-216-296-00	METAL GLAZE	0	5%	1/8W
JW123	1-216-296-00	METAL GLAZE	0	5%	1/8W
M901	1-541-738-11	MOTOR			
MIC901	1-542-136-11	MICROPHONE, BUILT-IN			
Q101	8-729-271-22	TRANSISTOR 2SC2712G			
Q102	8-729-271-22	TRANSISTOR 2SC2712G			
Q701	8-729-162-45	TRANSISTOR 2SB624-BV5			
R101	1-249-416-11	CARBON	820	5%	1/4W
R103	1-249-413-11	CARBON	470	5%	1/4W
R104	1-249-431-11	CARBON	15K	5%	1/4W
R105	1-249-423-11	CARBON	3.3K	5%	1/4W
R106	1-249-437-11	CARBON	47K	5%	1/4W
R107	1-249-437-11	CARBON	47K	5%	1/4W
R108	1-249-423-11	CARBON	3.3K	5%	1/4W
R109	1-249-418-11	CARBON	1.2K	5%	1/4W
R110	1-249-409-11	CARBON	220	5%	1/4W
R111	1-249-409-11	CARBON	220	5%	1/4W
R113	1-249-437-11	CARBON	47K	5%	1/4W
R114	1-249-429-11	CARBON	10K	5%	1/4W
R115	1-216-308-00	METAL GLAZE	4.7	5%	1/10W
R116	1-216-009-00	METAL GLAZE	22	5%	1/10W
R117	1-216-011-00	METAL GLAZE	27	5%	1/10W
R118	1-249-405-11	CARBON	100	5%	1/4W
R119	1-249-425-11	CARBON	4.7K	5%	1/4W
R120	1-249-427-11	CARBON	6.8K	5%	1/4W
R121	1-249-421-11	CARBON	2.2K	5%	1/4W
R122	1-249-416-11	CARBON	820	5%	1/4W
R123	1-249-417-11	CARBON	1K	5%	1/4W
R124	1-249-408-11	CARBON	180	5%	1/4W
R601	1-249-421-11	CARBON	2.2K	5%	1/4W
R602	1-249-409-11	CARBON	220	5%	1/4W
R603	1-249-419-11	CARBON	1.5K	5%	1/4W
R604	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R605	1-249-425-11	CARBON	4.7K	5%	1/4W
R708	1-249-413-11	CARBON	470	5%	1/4W
R709	1-249-437-11	CARBON	47K	5%	1/4W

Ref.No.	Part No.	Description
RV101	1-237-731-21	RES, VAR, CARBON 10K (VOLUME)
RV601	1-228-993-00	RES, ADJ, CARBON 4.7K (2.4CM)
RV602	1-228-991-00	RES, ADJ, CARBON 2.2K (1.2CM)
S101	1-572-246-11	SWITCH, SLIDE (REC/PB)
S102	1-571-478-11	SWITCH, SLIDE (TAPE SPEED)
S103	1-571-621-21	SWITCH, LEAF (POWER)
S105	1-571-275-11	SWITCH, SLIDE (PAUSE)
S106	1-571-986-11	SWITCH, LEAF (FF/REW)
SP901	1-503-761-11	SPEAKER
TH601	1-808-956-11	THERMISTOR, POSITIVE

ACCESSORY & PACKING MATERIAL

X-3338-703-1	(AEP,E)...STRAP ASSY
*3-343-905-01	(EXCEPT US)...CUSHION
*3-343-906-01	(EXCEPT US)...SPACER
*3-358-316-01	(EXCEPT US)...INDIVIDUAL CARTON
*3-343-987-01	(US)...CUSHION (UPPER)
*3-343-988-01	(US)...CUSHION (LOWER)
3-751-346-11	(AEP,E)....MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH/PORTUGUESE)
3-751-346-21	(US).....MANUAL, INSTRUCTION (ENGLISH)
3-751-346-31	(UK,Canadian)...MANUAL, INSTRUCTION (ENGLISH/FRENCH)
3-751-346-41	(AEP)....MANUAL, INSTRUCTION (GERMAN/DUTCH/SWEDISH/ITALIAN)

9-955-639-11

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